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EXAMINER

THOMPSON, JAMES A

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/808,563	Applicant(s) MOROO ET AL.	
	Examiner James A. Thompson	Art Unit 2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 March 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) _____ is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-7,9-13 and 15-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 02 March 2009 have been fully considered but they are not persuasive. While Examiner does agree with Applicant that the present amendments to the claims overcome the previously cited prior art, additional prior art has been discovered which fully teaches the presently amended claims. Accordingly, new grounds of rejection are set forth below. Since the new grounds of rejection are necessitated by Applicant's amendments to the claims, the present action is made final.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 3, 6, 7, 9, 12, 13, 15 and 18-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reed (US-2002/0164052) and Matsui (US-7,523,311).

Regarding claim 1: Reed discloses an image data processing apparatus (para. 33 of Reed) comprising: a dividing unit that divides the image data into a plurality of blocks (para. 42,

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lines 1-5 of Reed); an index extracting unit that extracts a feature index of a first color component and a feature index of a second color component which differs from the first color component from the divided blocks (para. 74, lines 7-16 of Reed - *intensity level of spot color and black corresponds to feature indices*); and a code embedding unit that embeds a code into the divided blocks of image data, by changing at least one of the extracted feature index of the first color component based on at least one of the extracted feature index of the second color component and information about correspondence between the one of the extracted feature index of the second color component and a change of the feature index of the first color component (figure 14 and para. 74 of Reed - *watermark embedded by tweaking spot color and creating corresponding negative tweak in black color*).

Reed does not disclose expressly a block extracting unit that extracts a pair of blocks from the divided blocks; and that the extracted feature indices of the first and second color components are of the pair of blocks.

Matsui discloses a block extracting unit that extracts a pair of blocks from the divided blocks (column 1, line 64 to column 2, line 5 and column 5, lines 31-35 of Matsui - *watermark embedding performed with respect to relationship between two adjoining blocks*).

Reed and Matsui are combinable because they are from the same field of endeavor, namely digital image data watermarking. At the time of the invention, it would have been obvious to a

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person of ordinary skill in the art to perform watermarking in pairs of blocks, as taught by Matsui. Thus, by combination with Reed, the extracted feature indices of the first and second color components are of the pair of blocks. The suggestion for doing so would have been that watermarking with respect to changes in adjoining blocks is computationally simpler than using more blocks or non-adjoining blocks. Therefore, it would have been obvious to combine Matsui with Reed to obtain the invention as specified in claim 1.

Regarding claims 7 and 13: Reed discloses an image data processing method comprising: dividing image data into a plurality of blocks (para. 42, lines 1-5 of Reed); extracting a feature index of a first color component and a feature index of a second color component which differs from the first color component from the divided blocks (para. 74, lines 7-16 of Reed - *intensity level of spot color and black corresponds to feature indices*); and embedding a code into the pair of blocks of the image data, by changing at least one of the extracted feature index of the first color component based on at least one of the extracted feature index of the second color component and information about correspondence between the one of the extracted feature index of the second color component and a change of the feature index of the first color component (figure 14 and para. 74 of Reed - *watermark embedded by tweaking spot color and creating corresponding negative tweak in black color*).

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Reed does not disclose expressly extracting a pair of blocks from the plurality of blocks; and that the extracted feature indices of the first and second color components are of the pair of blocks.

Matsui discloses extracting a pair of blocks from the plurality of blocks (column 1, line 64 to column 2, line 5 and column 5, lines 31-35 of Matsui - *watermark embedding performed with respect to relationship between two adjoining blocks*).

Reed and Matsui are combinable because they are from the same field of endeavor, namely digital image data watermarking. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to perform watermarking in pairs of blocks, as taught by Matsui. Thus, by combination with Reed, the extracted feature indices of the first and second color components are of the pair of blocks. The suggestion for doing so would have been that watermarking with respect to changes in adjoining blocks is computationally simpler than using more blocks or non-adjoining blocks. Therefore, it would have been obvious to combine Matsui with Reed to obtain the invention as specified in claims 7 and 13.

Further regarding claim 13: Reed discloses that the image data processing method of claim 7 can be performed using a computer-readable recording medium that stores a program that, when executed, makes a computer perform the method (para. 52, lines 1-6 of Reed).

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Regarding claims 3, 9 and 15: Reed discloses that the code embedding unit embeds the code into the divided block of the image data, by changing at least one of the extracted feature index of the first color component based on at least one of the extracted feature index of the second color component and information about a correspondence among the one of the extracted feature index of the second color component, a difference between the extracted feature indices of the second color component related to the blocks, and the change of the feature index of the first color component (figure 14; para. 42, lines 1-5; and para. 74 of Reed - *watermark embedded by tweaking spot color and creating corresponding negative tweak in black color*).

Reed does not disclose expressly that the extracted feature indices of the first and second color components are of the pair of blocks.

Matsui discloses extracting a pair of blocks from the plurality of blocks (column 1, line 64 to column 2, line 5 and column 5, lines 31-35 of Matsui - *watermark embedding performed with respect to relationship between two adjoining blocks*).

Reed and Matsui are combinable because they are from the same field of endeavor, namely digital image data watermarking. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to perform watermarking in pairs of blocks, as taught by Matsui. Thus, by combination with Reed, the extracted feature indices of the first and second color components are of the pair of blocks. The suggestion for doing

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so would have been that watermarking with respect to changes in adjoining blocks is computationally simpler than using more blocks or non-adjoining blocks. Therefore, it would have been obvious to combine Matsui with Reed to obtain the invention as specified in claims 3, 9 and 15.

Regarding claims 6, 12 and 18: Reed discloses a code extracting unit (para. 52, lines 2-4 of Reed - *corresponding portion of stored computer program*) that extracts the code embedded into the image data (figure 15 and para. 76 of Reed - *watermark is extracted and analyzed*).

Regarding claim 19: Reed discloses an image data processing apparatus (para. 33 of Reed) comprising: a code embedding unit that embeds a code into blocks of image data (para. 42, lines 1-5 of Reed) by changing at least a feature index of a first color component based on a magnitude relationship between the feature indices of color components related to the blocks (figure 14 and para. 74 of Reed - *watermark embedded by tweaking spot color and creating corresponding negative tweak in black color*).

Reed does not disclose expressly that the code is embedded into *pairs* of blocks of image data; and that the feature indices of the first and second color components are of the pair of blocks.

Matsui discloses embedding code into pairs of blocks of image data (column 1, line 64 to column 2, line 5 and column 5, lines 31-35 of Matsui - *watermark embedding performed with respect to relationship between two adjoining blocks*).

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Reed and Matsui are combinable because they are from the same field of endeavor, namely digital image data watermarking. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to perform watermarking in pairs of blocks, as taught by Matsui. Thus, by combination with Reed, the feature indices of the first and second color components are of the pair of blocks. The suggestion for doing so would have been that watermarking with respect to changes in adjoining blocks is computationally simpler than using more blocks or non-adjoining blocks. Therefore, it would have been obvious to combine Matsui with Reed to obtain the invention as specified in claim 19.

Regarding claim 20: Reed discloses an image processing method comprising: embedding a code into blocks of image data (para. 42, lines 1-5 of Reed) by changing at least a feature index of a first color component of a block based on a magnitude relationship between the feature indices of the first color component and second color component which differs from the first color component (figure 14 and para. 74 of Reed - *watermark embedded by tweaking spot color and creating corresponding negative tweak in black color*).

Reed does not disclose expressly pairing blocks of image data; that the code is embedded into the paired blocks; and that the feature indices of the first and second color components are of the paired blocks.

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Matsui discloses pairing blocks of image data and embedding code into the paired blocks (column 1, line 64 to column 2, line 5 and column 5, lines 31-35 of Matsui - *watermark embedding performed with respect to relationship between two adjoining blocks*).

Reed and Matsui are combinable because they are from the same field of endeavor, namely digital image data watermarking. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to perform watermarking in pairs of blocks, as taught by Matsui. Thus, by combination with Reed, the feature indices of the first and second color components are of the pair of blocks. The suggestion for doing so would have been that watermarking with respect to changes in adjoining blocks is computationally simpler than using more blocks or non-adjoining blocks. Therefore, it would have been obvious to combine Matsui with Reed to obtain the invention as specified in claim 20.

Regarding claims 21, 22 and 24: Reed discloses an embedding unit that is included in an image data processing apparatus (para. 33 of Reed) comprising: a dividing unit that divides the image data into a plurality of blocks (para. 42, lines 1-5 of Reed); and an index extracting unit that extracts a feature index of a first color component and a feature index of a second color component which differs from the first color component from the divided blocks (para. 74, lines 7-16 of Reed - *intensity level of spot color and black corresponds to feature indices*), wherein the

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code embedding unit embeds a code into the divided blocks of the image data, by changing at least one of the extracted feature index of the first color component based on at least one of the extracted feature index of the second color component and information about correspondence between the one of the extracted feature index of the second color component and a change of the feature index of the first color component (figure 14 and para. 74 of Reed - *watermark embedded by tweaking spot color and creating corresponding negative tweak in black color*).

Reed does not disclose expressly a block extracting unit that extracts a pair of blocks from the divided blocks; and that the extracted feature indices of the first and second color components are of the pair of blocks.

Matsui discloses a block extracting unit that extracts a pair of blocks from the divided blocks (column 1, line 64 to column 2, line 5 and column 5, lines 31-35 of Matsui - *watermark embedding performed with respect to relationship between two adjoining blocks*).

Reed and Matsui are combinable because they are from the same field of endeavor, namely digital image data watermarking. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to perform watermarking in pairs of blocks, as taught by Matsui. Thus, by combination with Reed, the extracted feature indices of the first and second color components are of the pair of blocks. The suggestion for doing so would have been that watermarking with respect to changes in

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adjoining blocks is computationally simpler than using more blocks or non-adjoining blocks. Therefore, it would have been obvious to combine Matsui with Reed to obtain the invention as specified in claims 21, 22 and 24.

Further regarding claim 22: The method of claim 22 is performed by the embedding unit of claim 21.

Further regarding claim 24: Reed discloses that the image data processing method of claim 22 can be performed using a computer-readable recording medium that stores a program that, when executed, makes a computer perform the method (para. 52, lines 1-6 of Reed).

Regarding claim 23: Reed discloses a method comprising: embedding a code into blocks of image data (para. 42, lines 1-5 of Reed) by changing at least one feature index of a first color component of a block based on a magnitude relationship between the feature indices of the first color component and second color component which differs from the first color component (figure 14 and para. 74 of Reed - *watermark embedded by tweaking spot color and creating corresponding negative tweak in black color*).

Reed does not disclose expressly pairing blocks of image data; that the code is embedded into the paired blocks; and that the feature indices of the first and second color components are of the paired blocks.

Matsui discloses pairing blocks of image data and embedding code into the paired blocks (column 1, line 64 to column 2, line 5 and column 5, lines 31-35 of Matsui - *watermark embedding*

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performed with respect to relationship between two adjoining blocks).

Reed and Matsui are combinable because they are from the same field of endeavor, namely digital image data watermarking. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to perform watermarking in pairs of blocks, as taught by Matsui. Thus, by combination with Reed, the feature indices of the first and second color components are of the pair of blocks. The suggestion for doing so would have been that watermarking with respect to changes in adjoining blocks is computationally simpler than using more blocks or non-adjoining blocks. Therefore, it would have been obvious to combine Matsui with Reed to obtain the invention as specified in claim 23.

4. Claims 4, 5, 10, 11, 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reed (US-2002/0164052), Matsui (US-7,523,311), and DeProspero (US-2002/0040648).

Regarding claims 4, 5, 10, 11, 16 and 17: The combination of Reed and Matsui does not disclose expressly that the first color component is a yellow color component and the second color component is a magenta color component. However, Reed does disclose that the tweaking can be performed such that the yellow component correlates with, but is different than, the magenta component (para. 30, lines 11-18 of Reed - *yellow and magenta combine such that luminance is maintained at constant level; if*

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magenta component increases, yellow component decreases by predetermined amount).

DeProspero discloses adjusting the yellow component based on the value of the magenta component, and thus the first color component is a yellow color component and the second color component is a magenta color component (para. 45 of DeProspero).

The combination of Reed and Matsui is combinable with DeProspero because they are from similar problem solving areas, namely the adjustment and correction of color data printed by the physical ink of one primary color through the modification of the amount of ink used for a different primary ink color. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to adjust the value of yellow based on the value of magenta, as taught by DeProspero. Thus, the first color component is a yellow component and the second color component is a magenta component. Reed already teaches that magenta and yellow can be set with respect to each other. Modifying the combination of Reed and Matsui with respect to the teachings of DeProspero would simply require that magenta and yellow are adjusted in opposition with each other, rather than in joint opposition to the black ink. The motivation for doing so would have been to compensate for the physical limitations of the printed colors, which are not always pure colors when physically printed (para. 44-45 of DeProspero - *different shades and qualities of varying desirability are used for magenta*).

Therefore, it would have been obvious to combine DeProspero with

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the combination of Reed and Matsui to obtain the invention as specified in claims 4, 5, 10, 11, 16 and 17.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Matsui, WO-00/44163, Published 27 July 2000.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A. Thompson whose telephone number is (571)272-7441. The examiner can normally be reached on 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward L. Coles can be reached on 571-272-7402. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/James A Thompson/
Primary Examiner
Art Unit 2625

07 June 2009